

CLAIMS

1. A uniform resource indicator (URI) pointer method for the retrieving MPEG-4 data pointers in an MPEG-2 transport stream (TS), the method comprising:

5 receiving an MPEG-2 TS;
locating a URI in the TS;
in response to the URI, accessing an address;
in response to accessing the address, retrieving MPEG-4
resources; and,
10 decoding the MPEG-4 resources.

2. The method of claim 1 wherein locating a URI in the TS includes locating a URI selected from the group including a local cache address, a Web protocol identifier, and a local identifier (lid).

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3. The method of claim 2 wherein receiving an MPEG-2 TS includes receiving an MPEG-2 TS embedded with MPEG-4 resources;
wherein locating a URI includes using lid URIs retrieved from the MPEG-2 TS; and,

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wherein retrieving MPEG-4 resources in response to accessing the lid URIs includes retrieving MPEG-4 resources from the MPEG-2 TS.

4. The method of claim 3 wherein receiving an MPEG-2
25 TS embedded with MPEG-4 resources includes receiving an MPEG-2 TS with MPEG-4 resources organized in Object Carousel (OC) system.

5. The method of claim 4 wherein receiving an MPEG-2 TS with MPEG-4 resources organized in OC system includes using an OC transport protocol;

5 wherein using lid URIs to provide a binding name and access scheme to the objects in the OC.

6. The method of claim 5 wherein using lid URIs to provide a binding name and access scheme to the objects in the OC
10 includes using a lid URI embedded in an Initial Object Descriptor (IOD) to locate resources in the OC selected from the group including a BIFS scene description stream and an object descriptor stream.

7. The method of claim 5 wherein using an OC transport
15 protocol includes forming a hierarchical directory structure.

8. The method of claim 7 wherein forming a hierarchical directory structure includes forming a hierarchical directory structure including a root directory, sub-directories, files, and streams.

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9. The method of claim 3 wherein receiving an MPEG-2 TS includes receiving a first MPEG-2 TS and a second MPEG-2 TS;

wherein locating a URI in the TS includes retrieving a lid URI in the first MPEG-2 TS; and,

wherein retrieving MPEG-4 resources in response to
accessing the lid URI includes retrieving MPEG-4 resources from the
second MPEG-2 TS.

5 10. The method of claim 1 wherein retrieving MPEG-4
resources in response to accessing the address includes retrieving MPEG-
4 resources selected from the group including audio, video, and systems
data.

10 11. The method of claim 1 wherein decoding the MPEG-4
resources includes an action selected from the group including enhancing
audio data in the MPEG-2 TS, enhancing video data in the MPEG-2 TS,
and using the systems data to establish an interactive audiovisual scene
and communication link.

15 12. The method of claim 7 further comprising:
caching the OC hierarchical directory.

 13. The method of claim 12 further comprising;
20 using the cached OC hierarchical directory to retrieve
MPEG-4 resources.

 14. The method of claim 10 further comprising:
establishing an interactive audiovisual scene and
25 communication link in response to decoding MPEG-4 systems data.

15. A uniform resource indicator (URI) pointer method for broadcasting pointers to MPEG-4 data in an MPEG-2 transport stream (TS), the method comprising:

generating a URI for accessing MPEG-4 resources located at
5 an address;
embedding the URI in an MPEG-2 TS; and,
broadcasting the MPEG-2 TS.

16. The method of claim 15 wherein generating a URI for
10 accessing the MPEG-4 resources includes generating a URI selected from the group including a local (receiver) cache address, a Web protocol identifier, and a local identifier (lid).

17. The method of claim 16 further comprising:
15 embedding MPEG-4 resources in the MPEG-2 TS; and,
wherein generating a URI for accessing the MPEG-4 resources includes using a lid URI for accessing the MPEG-4 resources in the MPEG-2 TS.

20 18. The method of claim 17 wherein embedding the MPEG-4 resources in the MPEG-2 TS includes organizing MPEG-4 resources in an Object Carousel (OC) transport protocol.

19. The method of claim 18 wherein using an lid URI for
25 accessing the MPEG-4 resources in the MPEG-2 TS includes using lid

URIs to provide a binding name and access scheme to the objects in the OC.

20. The method of claim 19 wherein using lid URIs to
5 provide a binding name and access scheme to the objects in the OC
includes using a lid URI embedded in an Initial Object Descriptor (IOD) to
locate resources in the OC selected from the group including a BIFS scene
description stream and an object descriptor stream.

10 21. The method of claim 19 wherein using an OC
transport protocol includes forming a hierarchical directory structure.

22. The method of claim 21 wherein forming a hierarchical
directory structure includes forming a hierarchical directory structure
15 including a root directory, sub-directories, files, and streams.

23. The method of claim 17 wherein embedding the URI in
an MPEG-2 TS includes locating a lid URI in a first MPEG-2 TS;
wherein embedding MPEG-4 resources in the MPEG-2 TS
20 includes embedding MPEG-4 resources in a second MPEG-2 TS; and,
wherein broadcasting the MPEG-2 TS includes broadcasting
the first and second MPEG-2 TSs.

24. The method of claim 15 wherein generating a URI for
25 accessing MPEG-4 resources located at an address includes accessing

MPEG-4 resources selected from the group including audio, video, and systems data.

25. The method of claim 15 wherein generating a URI for
5 accessing MPEG-4 resources located at an address includes resources
selected from the group including enhanced audio data in the MPEG-2 TS,
enhanced video data in the MPEG-2 TS, and systems data for the
establishment of an interactive audiovisual scene and communication
link.

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26. In a receiver for decoding MPEG-4 data, a uniform
resource indicator (URI) pointer system for accessing pointers to MPEG-4
data from an MPEG-2 transport stream (TS), the system comprising:

15 a receiver having an interface for accepting an MPEG-2 TS
with an embedded URI for accessing MPEG-4 resources;
an address access unit having an interface to accept the
MPEG-2 TS from the receiver, the address access unit locating a URI in
the TS, accessing an address, and retrieving MPEG-4 resources; and,
20 a decoder having an interface connected to the address access
unit for receiving the MPEG-4 resources and supplying decoded the
MPEG-4 information.

27. The system of claim 26 wherein the address access
unit locates a URI selected from the group including a local cache address,
25 a Web protocol identifier, and a local identifier (lid).

28. The system of claim 27 wherein the address access unit receives an MPEG-2 TS embedded with MPEG-4 resources and uses lid URIs located in the MPEG-2 TS to retrieve MPEG-4 resources from the MPEG-2 TS.

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29. The system of claim 28 wherein the address access unit receives an MPEG-2 TS with MPEG-4 resources organized in Object Carousel (OC) transport protocol.

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30. The system of claim 29 wherein the address access unit includes a directory, the address access unit accepts the transport file, builds an OC in the directory, and uses lid URIs to provide a binding name and access scheme to the objects in the OC.

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31. The system of claim 30 wherein the address access unit uses a lid URI embedded in an Initial Object Descriptor (IOD) to locate resources in the OC selected from the group including a BIFS scene description stream and an object descriptor stream.

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32. The system of claim 30 wherein the address access unit builds an OC hierarchical directory.

33. The system of claim 32 wherein the address access unit OC hierarchical directory includes a root directory, sub-directories, files, and streams.

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34. The system of claim 28 wherein the address access unit receives a first MPEG-2 TS and a second MPEG-2 TS, retrieves a lid URI in the first MPEG-2 TS, and uses the lid URI to retrieve MPEG-4 resources from the second MPEG-2 TS.

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35. The system of claim 26 wherein the decoder supplies MPEG-4 resources selected from the group including audio, video, and systems data.

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36. The system of claim 26 wherein the decoder supplies resources selected from the group including enhanced audio data in the MPEG-2 TS, enhanced video data in the MPEG-2 TS, and systems data to establish an interactive audiovisual scene and communication link.

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37. The system of claim 30 further comprising:
a cache mechanism for storing the OC hierarchical directory.

38. The system of claim 37 wherein the address access unit uses lid URIs to retrieve MPEG-4 resources from the OC hierarchical
20 directory in the cache mechanism.

39. The system of claim 35 further comprising:
a transmitter having an interface to send MPEG-4
information;

an interactive audiovisual scene and communication link, including the transmitter and receiver, formed in response to decoding MPEG-4 systems data, sending and receiving MPEG-4 information.

5 40. In an MPEG-4 broadcaster, a uniform resource indicator (URI) pointer system for supplying an MPEG-2 transport stream (TS) with URIs for accessing MPEG-4 data, the system comprising:

an address pointer unit having an interface to supply an MPEG-2 TS with URIs for accessing MPEG-4 resources; and,

10 a transmitter having an interface to accept the MPEG-2 TS from the address pointer unit and to broadcast the MPEG-2 TS.

41. The system of claim 40 wherein the address pointer unit generates a URI selected from the group including a local (receiver) cache address, a Web protocol identifier, and a local identifier (lid).

42. The system of claim 41 further comprising:
an encoder having an interface to accept MPEG-4 information and to supply encoded MPEG-4 resources; and,
20 wherein the address pointer unit accepts the encoded MPEG-4 resources, embeds the encoded MPEG-4 resources in the MPEG-2 TS, and generates a lid URI for accessing the MPEG-4 resources in the MPEG-2 TS.

43. The system of claim 42 wherein the address pointer unit organizes MPEG-4 resources in the MPEG-2 TS using an Object Carousel (OC) transport protocol.

5 44. The system of claim 43 wherein the address pointer unit uses lid URIs to provide a binding name and access scheme to the objects in the OC.

10 45. The system of claim 44 wherein the address pointer unit uses a lid URI embedded in an Initial Object Descriptor (IOD) to locate resources in the OC selected from the group including a BIFS scene description stream and an object descriptor stream.

15 46. The method of claim 44 wherein the address pointer unit forms an OC system hierarchical directory structure.

20 47. The system of claim 46 wherein the address pointer forms an OC transport protocol hierarchical directory structure including a root directory, sub-directories, files, and streams.

 48. The system of claim 42 wherein the address pointer unit forms a lid URI in a first MPEG-2 TS, and embeds MPEG-4 resources in a second MPEG-2 TS; and,
 wherein the transmitter broadcasts the first and second
25 MPEG-2 TSs.

49. The system of claim 40 wherein the address pointer unit generates URIs for MPEG-4 resources selected from the group including audio, video, and systems data.

5 50. The system of claim 40 wherein the address pointer unit generates URIs for MPEG-4 resources selected from the group including enhanced audio data in the MPEG-2 TS, enhanced video data in the MPEG-2 TS, and systems data for the establishment of an interactive

10 audiovisual scene and communication link.